The Research on various protocol for efficient data dissemination in vehicular ad hoc network

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Abstract- Vehicular ad hoc wireless networks (VANETs) are a particularly challenging class of mobile ad hoc wireless networks (MANETs) that are currently attracting the extensive attention ofresearch in the field of wireless networking as well as automotive industries. ANETs exhibits stronger challenges than that in other general MANETs. Infrastructure-free environments and higher dynamic network topology cause frequent network partition. Moreover, vehicular ad hoc wireless networks is often deployed by the constraint of roadways where trees, buildings and other assorted obstacles influence the practical transmission effects as compared to generic open fields. we proposed APL Algorithm data node technique with APAL algorithm for better data dissemination

Index Terms- data dissemination,APAL,VANET,HNDT

I. INTRODUCTION

VANET also serves as a large scale wireless sensor network for future ITS because every modern vehicle can be regarded as a super sensor node. For example, every new vehicle are usually equipped with light sensors ,one or more cameras , microphone, wireless radio or GPS receiver , which will enable them to communicate with each other and with roadside equipments. VANET consist of vehicles with on –board sensors and road side units (RSU), which provide communication between vehicle -to-vehicles (V2V) and vehicles –to-RSU (V2R). Figure 1 gives the illustration of VANET [10] .In the below figure, vehicles V1, V2 and V3 have access to a roadside infrastructure which have limited coverage area[11]

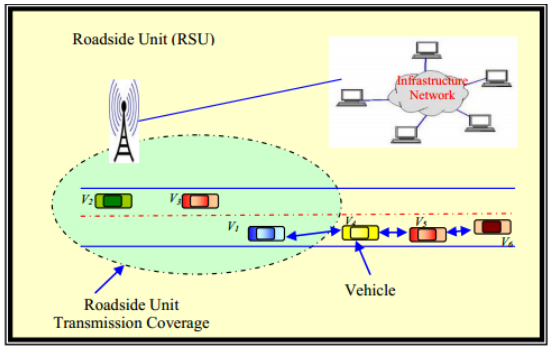

Figure 1: Vehicular Ad Hoc Network

1.clustering of vehicle : in a clustering structure the vehicle nodes are divides into number of virtual groups based on c certain rules.these virtual groups are called clusters [3]. Equipped vehicles form dynamic clusters and the ones that are more adequate become cluster head. CH is responsible for controlling the data propagation inside and between the clusters. The dynamic clusters are themselves mobile, moving along with the high-speed vehicles; this ensures that even with high-speed vehicles, the moving cluster architecture result in relatively stable topology, as long as velocity of the vehicles remains more or less the same.[1]

2. chaning of clusters : chaining of clusters could be don by the CH. The clusters members in a clusters communicate with their CH. This CH node can communicate beyond the clusters boundaries using a clustyer control channel. Then send this status information to the next CH node which in turn transmits the information to next CH node. The process repeated and forms chaining in clusters until the one of the CH node that have received the packets in the communication range of RSU [1].

II. RELATED WORK

Rakesh [1] VANETs (Vehicular Ad hoc Networks) are upcoming wireless network environment for Intelligent Transportation Systems (ITS). Most VANET applications are built upon the datapush communication model, where information is disseminated to a set of vehicles. The diversity of the VANET applications and their potential communication protocols needs a systematic literature survey.

M.Chitra [2] Broadcasting is the process of sending a message from one node to all other nodes in an ad hoc network. It is a fundamental operation for communication in ad hoc networks as it allows for the update of network information, route discovery and other operations as well. In this paper, we review the pros and cons of different broadcasting methods in VANET. Also, the broadcast storm problem and broadcast suppression techniques for broadcasting in Vehicular Ad hoc Networks (VANET) are discussed, because blindly broadcasting the packets cause several problems that affect the quality of service in VANET. In order to avoid broadcast storm problem this paper provides a survey of some of the existing broadcast suppression techniques in vehicular environment.

Sunil kumar [4] states that Less than a century since the automobile was made affordable enough for the general public, hundreds of millions of vehicles now travel along highways and streets around the world. Innovations in safety,

comfort, and convenience have made vast improvements in automobiles during that time, and now new technologies promise to change the face of vehicular travel once again. Vehicular ad hoc network (VANET) is network which provides the communication between vehicle to vehicle for p r o v i d i n g i n f o r m a t i o n t o travelers with new features and applications that have never previously been possible. This paper focuses on vehicle to vehicle (V2V) communications in VANET. Lot of research is going on for determining route between source and destination vehicles for routing the information with good packet delivery ratio.

Brij bihari dubey [6] said In vehicular ad hoc networks data transfer is typically done with the help of multihop communication in which the high speed vehicles are acting as the data carrier. The vehicles areconstrained to move on definite path depending on the road layout and the traffic conditions. In vehicular ad hoc network multihop data delivery is very complicated job because of the high mobility and frequent disconnections occurring in the vehicular networks. The biggest challenge in vehicular ad hoc networks is the collection of information like accident, speed limit, any obstacle on road, road condition, traffic condition, commercial advertisement, etc, for the safety and convenience purpose. In many dissemination techniques, the vehicle carries the packet until it finds any other vehicle in his range which is moving towards the direction of the destination and then it forwards the packet to that vehicle. Since the road layouts are already defined, the vehicle selects the next road having minimum latency to forward the packet to the destination. We can only calculate the probabilistic estimate that which path should be followed for minimizing delay so that limited available bandwidth can be efficiently utilizes

Moumena [7] said that The rapid evolution of wireless communication capabilities and vehicular technology would allow traffic data to be disseminated by traveling vehicles in the near future. Vehicular Ad hoc Networks (VANETs) are self-organizing networks that can significantly improve traffic safety and travel comfort, without requiring fixed infrastructure or centralized administration. However, data dissemination in VANET environment is a challenging task, mainly due to rapid changes in network topology and frequent fragmentation.

III. PROPOSED WORK

PROPOSED SCHEME APAL algorithm

1. When receive alert message
2. IF (receive alert message is for first time)
3. Δ^{τ}_{I} random between 1-100 ms
4. P_i random probalibility between 0.7-0.9
5. END IF
6. Count time = 0
7. Duplicate number =0
8. WHILE (Count time $<\beta$ && duplicate number is $>\alpha$)
9. WHILE (Δ^{τ}_{I} is not expired)
10. Listen for duplicate alert message
11. Count = number of received duplicate alert message.
12. END WHILE
13. IF(receive duplicate alert message)
14. Duplicate number = duplicate number + count
15. $P_{i+1} = p_i$/ duplicate number
16. $\Delta^{\tau}_{i+1} = \Delta^{\tau}_{I} *$ duplicate number
17. ELSE
18. Rebroadcast with p_i
19. IF (rebroadcast is successful)
20. $P_{i+1} = p_i/2$
21. $\Delta^{\tau}_{i+1} = \Delta^{\tau}_{i}$
22. END IF
23. END IF
24. Count time = count time + Δ^{τ}_{i}
25. END WHILE

APAL algorithm is introduced. In contrast with the TLO algorithm which was discussed previously, APAL algorithm doesn't require any GPS location information. APAL becomes highly favorable than TLO, since accurate location information is difficult to calculate when vehicle moving at a high speed at real road environment. Thus APAL algorithm doesn't need any location information and the probability of the broadcast alert message is chosen adaptively to avoid the lost alert message problem and to minimize the broadcast problem.To curve the problems caused by flooding algorithms and restricted transmission,

IV. CONCLUSION

In vehicular Ad-Hoc networks the technology is changing very fast, the various algorithms are used for better data transmission a best algorithm is proposed according to the requirement. The efficient data dissemination techniques can provide significant benefits to vehicular ad hoc networks, in terms of both performance and reliability. Many data dissemination techniques for such networks have been proposed so far. Amongst the most popular one is helper data system. This Algorithm technique used to choose the reliable node for continuous data transmission. The propose Algorithm is used to choose selective node for forwarding the data with carry forward technique. .In future work, various data dissemination technique can be done with the help of various algorithm for efficient data security.

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